

## **Claims**

What is claimed:

1 1. A method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit, the method comprising:  
3 estimating time delays required for transferring the sub-protocol data units  
4 between a scheduler unit and each of the base transceiver stations; and  
5 the scheduler unit generating a schedule of time slots and frequency blocks in  
6 which the sub-protocol data units are to be transmitted from the base transceiver stations  
7 to the subscriber unit.

1 2. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, wherein the time delays are used to  
3 generate the schedule.

1 3. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 2, wherein the time delays are used to  
3 generate the schedule by using the time delays to project a timing of when the sub-  
4 protocol data units are to be wirelessly transmitted from the base transceiver stations.

1 4. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 2, wherein the time delay are used to

3 generate a look ahead schedule that compensates for the timing delays of the sub-protocol  
4 data units from the scheduler unit to the base transceiver stations.

1 5. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, further comprising:  
3 wirelessly transmitting the sub-protocol data units from the base transceiver  
4 stations to the subscriber unit according to the schedule.

1 6. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, wherein estimating time delays  
3 required for transferring the sub-protocol data units between the scheduler unit and the  
4 base transceiver stations comprises time-stamping sub-protocol data units before sub-  
5 protocol data units are transferred from the scheduler unit to the base transceiver stations,  
6 and estimating the time delays by comparing the times the sub-protocol data units are  
7 actually received by the base transceiver stations with the times of the time-stamping.

1 7. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 2, wherein the time delays are determined  
3 at each base transceiver station and transferred back to the scheduler unit.

1 8. The method of transmitting sub-protocol data units from a plurality of base  
 2 transceiver stations to a subscriber unit of claim 1, further comprising:  
 3 the scheduler receiving standard protocol data units from a network;  
 4 the scheduler sub-dividing the standard protocol data units forming the sub-  
 5 protocol data units.

1 9. The method of transmitting sub-protocol data units from a plurality of base  
 2 transceiver stations to a subscriber unit of claim 1, further comprising:  
 3 storing the sub-protocol data units in scheduling buffers.

1 10. The method of transmitting sub-protocol data units from a plurality of base  
 2 transceiver stations to a subscriber unit of claim 1, further comprising:  
 3 synchronizing the base transceiver stations to a common reference clock.

1 11. The method of transmitting sub-protocol data units from a plurality of base  
 2 transceiver stations to a subscriber unit of claim 10, wherein synchronizing the base  
 3 transceiver stations to a common reference clock comprises:  
 4 receiving a global positioning satellite (GPS) signal; and  
 5 generating the common reference clock from the GPS signal.

1 12. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, further comprising:  
3 transferring the sub-protocol data units from the scheduler to the base transceiver  
4 stations in sufficient time to allow the base transceiver stations to transmit according to the  
5 schedule.

1 13. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, wherein the scheduler is located in a  
3 base station controller.

1 14. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, wherein the scheduler is located within  
3 a home base transceiver station.

1 15. The method of transmitting sub-protocol data units from a plurality of base  
2 transceiver stations to a subscriber unit of claim 1, wherein the home base transceiver  
3 station is the base transceiver station having a highest quality transmission link with the  
4 subscriber unit.

1 16. The method of transmitting within a cellular wireless system of claim 5, wherein  
2 the sub-protocol data units are transmitted between the base transceiver stations and the

3 subscriber unit in data blocks, the data blocks being defined by a frequency block and time  
4 slot.

1 17. The method of transmitting within a cellular wireless system of claim 5, further  
2 comprising:  
3 transmitting sub-protocol data units from the subscriber unit to at least one of base  
4 transceiver stations.

1 18. The method of transmitting within a cellular wireless system of claim 17, wherein  
2 the sub-protocol data units are transmitted from the subscriber unit in data blocks, the data  
3 blocks being defined by a frequency block and time slot.

1 19. The method of transmitting within a cellular wireless system of claim 17, wherein  
2 the scheduler unit generates a map that determines when the data blocks are transmitted  
3 from the subscriber unit to the base transceiver stations.

1 20. The method of transmitting within a cellular wireless system of claim 19, wherein  
2 there are a predetermined number of data blocks transmitted per frame unit of time.

1 21. The method of transmitting within a cellular wireless system of claim 20, wherein  
2 the map is transmitted to the subscriber unit once per frame unit of time.

1 22. The method of transmitting within a cellular wireless system of claim 1, further  
2 comprising:  
3 wirelessly transmitting from a single one of the base transceiver stations to the  
4 subscriber unit.

1 23. A cellular wireless communication system comprising:  
2 a scheduler unit, the scheduler unit receiving the protocol data units from a  
3 network and sub-dividing the protocol data units into sub-protocol data units;  
4 a plurality of base transceiver stations receiving the sub-protocol data units, and  
5 wirelessly transmitting the sub-protocol data units to a subscriber unit;  
6 means for estimating time delays for required for transferring the sub-protocol data  
7 units from the scheduler unit to the base transceiver stations; wherein  
8 the scheduler unit determines a schedule protocol for transmission of the sub-  
9 protocol data units by the plurality of base transceiver stations, the schedule accounting  
10 for the time delays.

1 24. The cellular wireless communication system of claim 23, further comprising a base  
2 controller station, the base controller station comprising the scheduler unit.

1 25. The cellular wireless communication system of claim 23, wherein the plurality of  
2 base transceiver stations comprise a home base transceiver station, the home base  
3 transceiver station comprising the scheduler unit.

1 26. The cellular wireless communication system of claim 25, wherein the home base  
2 transceiver station is the base transceiver station that has a highest quality transmission  
3 link with the subscriber unit.

1 27. The cellular wireless communication system of claim 23, wherein the sub-protocol  
2 data units are transmitted between the base transceiver stations and the subscriber unit in  
3 data blocks, in which the data blocks are defined by a frequency block and time slot.

1 28. The cellular wireless communication system of claim 27, wherein the scheduler  
2 generates a map that depicts when the data blocks are transmitted from the base  
3 transceiver stations to the subscriber unit.

1 29. The cellular wireless communication system of claim 28, wherein the map is  
2 generated once per a frame unit of time.

1 30. The cellular wireless communication system of claim 29, wherein there are a  
2 predetermined number of data blocks transmitted per frame unit of time.

1 31. The cellular wireless communication system of claim 30, wherein the map is  
2 transmitted to the subscriber unit once per frame unit of time.

1 32. The cellular wireless communication system of claim 27, wherein a number of  
2 sub-protocol data units that are within a data block is dependent upon a quality of  
3 transmission links between the base transceiver stations and the subscriber unit.

1 33. The cellular wireless communication system of claim 32, wherein the scheduler  
2 unit maintains transmission link quality information between each the plurality of base  
3 transceiver stations and the subscriber unit.

1 34. The cellular wireless communication system of claim 27, wherein the scheduler  
2 unit determines how many data blocks are transmitted from each base transceiver station  
3 to the subscriber unit during a frame unit of time, based upon the transmission link quality  
4 information.

1 35. The cellular wireless communication system of claim 33, wherein the transmission  
2 link quality information is periodically updated.



1 36. The cellular wireless communication system of claim 33, wherein the transmission  
2 link quality information is included within a transmission link quality look-up-table.

1 37. The cellular wireless communication system of claim 33, wherein the transmission  
2 link quality information is determined at each base transceiver station by sending  
3 predetermined patterns of information within the sub-protocol data units.

1 38. The cellular wireless communication system of claim 33, wherein the transmission  
2 link quality information is transmitted from the subscriber unit back to the scheduler unit.

1 39. The cellular wireless communication system of claim 23, wherein sub-protocol  
2 data units are also transmitted from the subscriber unit to at least one of base transceiver  
3 stations.